

In the meantime, Perkin not only manufactured mauve, but was steadily working at the artificial products of alizarine, which he was able to obtain in 1868, and immediately produced it on the large scale. In 1873, recognising that a very largely increased manufacturing scale was necessary for the highest degree of success (a principle since so thoroughly carried out by the large German firms), Perkin decided to retire from business, and his works were sold. After some vicissitudes the business was transferred to Silvertown, where the British Alizarine Company carries on a large and successful manufacture of alizarine dyes.

From the beginning the development of the industry steadily continued, both in England and on the Continent. In 1859 Griess, a chemist employed at Allsopp's Brewery, discovered the first azo dye, which was manufactured in 1863 by Simpson, Maule, and Nicholson. This was the starting point of one of the most important branches of the colour industry, and was rapidly followed by many brilliant discoveries by Hofmann, Nicholson, Caro, Martius, and Witt in England, Girard and De Laire and Poirrier in France, and Baeyer, Böttiger, Duisberg, and many others in Germany.

The outcome of this has been that the colour industry has progressed to one of enormous importance. The combination of scientific research and business skill so strikingly exemplified by Perkin and Nicholson has been applied in Germany with marvellous success, and has resulted in the development of several great firms, each employing several thousands of workmen and hundreds of chemists and engineers.

The example set by Englishmen has not been followed to the same extent in this country, and the industry, affected by the fall of one or two historic houses, has progressed but slowly.

In failing to synthesise what is perhaps the most important aid known to medicine, Perkin gave to medicine its most potent drugs; for the separation of hundreds of products from coal-tar has enabled chemists to prepare phenacetin, antipyrin, antifebrin (the latter actually produced on the large scale as a bye-product by Perkin), and many others. Extensive manufactoryes of saccharin, photographic developers, and pharmaceutical products have been erected, and, indeed, it is difficult to say where the far-reaching influence of Perkin's discovery may end.

One thing is sure, it is not to be measured by mere statistics; in the words of Hofmann, "the moral of Mauve . . . is transparent enough. Whenever one of your chemical friends, full of enthusiasm, exhibits and explains to you his newly-discovered compound, you will not cool his noble ardour by asking him that most terrible of all questions, 'What is its use? Will your compound bleach or dye? Will it shave? May it be used as a substitute for leather?' Let him quietly go on with his work. The dye, the leather, will make their appearance in due time. Let him, I repeat, perform his task. Let him indulge in the pursuit of truth,—of truth pure and simple,—of truth not for the sake of Mauve,—let him pursue truth for the sake of truth!"

It was a peculiarly happy circumstance that the meeting to honour Sir William Henry Perkin should have been held in the Royal Institution. The most elementary constituent of coal-tar, viz. benzene, was discovered here by Faraday in 1825, and this was followed by Perkin's own discovery of mauve in his home laboratory. "Let me tell you then," said Hofmann in the lecture room in 1862, "that Mauve and Magenta are essentially Royal Institution colours:

the foundation of this new industry was laid in Albemarle Street."

The whole of the chemical world was represented at the meeting on July 26, which was presided over by Prof. R. Meldola, F.R.S. It is only necessary to mention such names as Emil Fischer, H. Caro, Albin Haller, P. Friedländer, C. Duisberg, G. Schultz, A. Bernthsen, C. Liebermann, R. Möhlau, in order to indicate that the very foremost of foreign chemists were present, and all the representative English men of science and technology were to be seen at this historic gathering. The presentation of the Hofmann and Lavoisier gold medals, the foreign university degrees, and the great number of congratulatory addresses gave ample proof, were it needed, of the admiration with which all chemists regard the founder of this great industry.

At the dinner in the Whitehall Rooms in the evening (Prof. Meldola in the chair), tributes were paid by an even wider circle of appreciative admirers. Mr. Haldane, His Majesty's Secretary of State for War (who proposed the toast of the evening), the Earl of Halsbury, Lord Alverstone, Sir William Broadbent, Sir Henry Roscoe, Profs. E. Fischer and A. Haller, Sir Robert Pular, and the chairman pointed out the benefits accruing, not merely to the colour industry, the dyeing trade, the medical profession, and science at large, but also to the whole world.

On the following day Sir William and Lady Perkin entertained a large number of guests at The Chestnuts, Sudbury, near Harrow. The old Greenford works and Sir William's private laboratory were visited, whilst in the beautiful garden one saw the madder plants which came from the late Dr. Schunck's garden in Manchester.

Sir William and Lady Perkin's reception in the Hall of the Leathersellers' Company concluded the festivities, which will never be forgotten by those who were privileged to take part in them.

J. C. CAIN.

#### THE SPORADIC PUBLICATION OF SCIENTIFIC PAPERS.

**I**N these latter days the development of science has led to an inverted fulfilment of the old prophecy, "Men shall run to and fro and knowledge shall be increased." Nowadays men have to run to and fro because knowledge is increased. A very considerable portion of the time of a man of science is taken up in "running to and fro" seeking for the papers which he wishes, which, indeed, he is bound to consult. There are various ways in which much of the time thus spent might be saved, and some of these ways are being more or less successfully made use of. One cause, however, of this "running to and fro" deserves special attention, because it seems really unnecessary, and the time spent through its continuance may be said to be time wholly wasted.

It has been my lot to receive almost at the same time a number of the Journal of the Marine Biological Association, a volume of the Scientific Memoirs of the Officers of the Medical and Sanitary Departments of the Government of India, a volume of the Thompson-Yates and Johnston Laboratories Reports, and the annual Report of the Medical Officer of Health to the Local Government Board.

All these contained papers of great scientific value, and I feel sure that many besides myself are continually having brought before them similar instances of the abundance of what I venture to call the sporadic publication of scientific papers. This has been very strikingly brought home to those who have had to

do with the Royal Society's Catalogue of Scientific Papers or the International Catalogue of Scientific Literature.

Now two channels for the publication of scientific papers must be accepted without cavil.

In each country (for international publications, however desirable, present almost insurmountable mechanical difficulties) it is well that there should be a periodical devoted to each "branch" of science, and as time goes on each "branch" will naturally become more and more subdivided. This may be regarded as the natural, and, putting on one side historical considerations, the first channel.

But the publications of established academies and of the older special societies must be accepted also. The newer special societies would do well to make use of the special journals, in some such way as the Physiological Society makes use of the *Journal of Physiology*, and perhaps even some of the older ones might adopt the same methods.

In any case, there is no reason for special comment on these two channels. But things are different when we come to consider the kind of publication of which I have given examples above.

Let me take, for instance, the Journal of the Marine Biological Association, and the Thompson-Yates and Johnston Laboratories Reports. The number of the former is almost wholly occupied by a memoir of systematic zoology, the number of the latter by papers on trypanosomiasis. Why should the student in systematic zoology, who has possibly at some expense taken steps to secure ready access to the publications of the Zoological and Linnean Societies, have also to run after the Journal of the Marine Biological Association?

Why should the student in tropical diseases have to run hither and thither, seeking in this and that report what he ought to find ready at hand either in the *Journal of Comparative Pathology* or *Journal of Hygiene*, or some still more special periodical?

Now there can be no doubt that the *causa causans* of the two periodicals in question is advertisement. One cannot but sympathise with the efforts of the Marine Biological Association to make its worth known; one has also sympathy with the University of Liverpool, but less acute since its great merits are in everyone's mouth. But I venture to put the question, Is it desirable that, for the mere sake of advertisement, the progress of science should be hindered? For anything which puts obstacles in the way of the student getting ready access to a knowledge of what has been done is a distinct hindrance to progress. Why should not the Marine Biological Association spend the money which it has spent in printing the Hon. C. Eliot's valuable memoir on British nudibranchs in subsidising some acknowledged channel of zoological publication. It is well that the association should have a journal, but that journal ought to be occupied exclusively by business matters; all scientific papers of permanent value produced by help of the association ought to be published elsewhere.

In the same way, why should not the Liverpool University spend some of the ample funds at its disposal in subsidising periodicals, many at least of which are in urgent need of support? This would in the end be even a better advertisement.

The Lister Institute sets in this respect a very good example. It too has need of advertisement, but the results of the varied work carried on there are published each in an appropriate acknowledged channel. It limits its direct advertisement to issuing in a collected form reprints of the various papers scattered over many periodicals.

The scientific papers in Government publications stand on a somewhat different footing from those just spoken of. The Annual Report of the medical officer of the Local Government Board referred to above contains, besides several papers of direct administrative value, under the term "report" a number of valuable papers of a purely scientific character, papers to which every inquirer in pathology ought to have ready access. But why should a scientific library, and why especially should the limited library of a pathological institute or laboratory, for the sake of a mouthful of pure science, burden its shelves with an intolerable mass of administrative details? The publications of the medical officer of the Local Government Board do not stand alone in this respect. In the enormous mass of printed matter which H.M. Government puts out every year there are hidden, buried, lost to view, records of scientific research of varying but not unfrequently of great value, records to which the scientific inquirer ought to have ready access. This official burial of scientific work does a double harm; it harms him who did the work, it harms all those who, through the burial, miss knowing what has been done.

Of course it must be recognised that H.M. Government, having ordered and supplied the funds for a scientific inquiry, has a right of possession in the records of that inquiry, so that by the official publication of that record it may justify before Parliament and the public the order for the inquiry. The matter is further complicated by the fact that when the order for inquiry is part of the work of a Royal Commission, the results of such an inquiry cannot be made known until the report of the commission on its work as a whole is laid before Parliament and published.

But these difficulties are not such as cannot be overcome. A small Commission of the nature of what is known as a Departmental Committee, appointed some little time back to investigate plague in India, has, with the approval of the authorities, adopted the following plan. While making the usual arrangements for the reports on administrative matters, it proposes to publish from time to time the scientific results of the work of the commission in an appropriate scientific journal, securing, by the purchase of extra copies of the records thus published, the means for the complete publication of the whole work of the commission at some future period.

Such a plan might be extended to all scientific inquiries carried out by order of H.M. Government; it needs nothing more than frank negotiations between persons responsible to H.M. Government and editors of scientific periodicals. Such a plan would bring many blessings. It would enable the man of science who is putting his best into the work which he is doing for Government to feel that the record of his work will not be hopelessly lost sight of. It would save other men of science the labour of hunting for scientific needles in Government bottles of hay, or the chagrin of finding out, when too late, that by shrinking from such uncongenial labour they had missed something of great price. It would save the nation a not inconsiderable sum of money, and yet furnish the editors of scientific journals with money, which many of them need for the conduct of their journals, and which most of them at least would use in helping the poor author to a more complete publication of the records of his work. Lastly, it would relieve the bibliographer from much wearisome labour. In every way, in fact, it would tend to advance natural knowledge.

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